

Listing of Claims:

1. (Previously presented) A method of preparing nickel oxyhydroxide, the method comprising:

combining a nickel hydroxide and a hydroxide salt in an inert atmosphere to form a dry mixture; and

contacting the dry mixture with humidified ozone to form a nickel oxyhydroxide.

2. (Original) The method of claim 1, wherein the nickel hydroxide includes a beta-nickel hydroxide, a cobalt hydroxide-coated beta-nickel hydroxide, an alpha-nickel hydroxide, or a cobalt hydroxide-coated alpha-nickel hydroxide.

3. (Original) The method of claim 1, wherein the nickel oxyhydroxide includes a beta-nickel oxyhydroxide, a cobalt oxyhydroxide-coated beta-nickel oxyhydroxide, a gamma-nickel oxyhydroxide, or a cobalt oxyhydroxide-coated gamma-nickel oxyhydroxide.

4. (Original) The method of claim 1, wherein the inert atmosphere is substantially free of carbon dioxide.

5. (Original) The method of claim 1, wherein the inert atmosphere is substantially free of water.

6. (Original) The method of claim 1, wherein the inert atmosphere is substantially free of carbon dioxide and substantially free of water.

7. (Previously presented) The method of claim 1, further comprising heating the dry mixture prior to contacting the dry mixture with humidified ozone.

8. (Previously presented) The method of claim 1, further comprising agitating the dry mixture while contacting the dry mixture with humidified ozone.

9. (Previously presented) The method of claim 1, wherein contacting the dry mixture with humidified ozone comprises contacting the dry mixture with a gas mixture including ozone.

10. (Original) The method of claim 9, wherein the gas mixture includes dioxygen.

11. (Cancelled)

12. (Original) The method of claim 1, wherein the nickel hydroxide is a powder including particles having a spherical, spheroidal, or ellipsoidal shape.

13. (Original) The method of claim 1, wherein the nickel hydroxide is a substantially dry nickel hydroxide.

14. (Original) The method of claim 1, wherein the hydroxide salt includes potassium hydroxide, sodium hydroxide, lithium hydroxide, or mixtures thereof.

15. (Original) The method of claim 1, wherein the hydroxide salt includes silver hydroxide or gold hydroxide.

16. (Previously presented) The method of claim 1, wherein the method comprises contacting the dry mixture with humidified ozone for less than 24 hours.

17. (Original) The method of claim 16, wherein the nickel hydroxide includes a cobalt hydroxide-coated beta-nickel hydroxide or a cobalt hydroxide-coated alpha-nickel hydroxide.

18. (Original) The method of claim 1, wherein the mixture further includes an oxidation-promoting additive.

19. (Original) The method of claim 18, wherein the oxidation-promoting additive includes metallic silver, silver(+1) oxide, silver(+1,+3) oxide, metallic gold, gold (+3) oxide, gold (+3) hydroxide, potassium peroxide, potassium superoxide, potassium permanganate, or silver permanganate.

20. (Original) The method of claim 1, wherein the nickel hydroxide includes a bulk dopant.

21. (Original) The method of claim 1, wherein the bulk dopant includes aluminum, manganese, cobalt, gallium, indium, or bismuth.

22-28. (Cancelled)

29. (Previously presented) A method of manufacturing a battery, the method comprising:

combining a nickel hydroxide and a hydroxide salt in an inert atmosphere to form a dry mixture;

contacting the dry mixture with humidified ozone to form a nickel oxyhydroxide; and

assembling a cathode comprising the nickel oxyhydroxide, an anode, a separator, and an electrolyte to form the battery.

30. (Previously presented) A method of decreasing capacity loss in a nickel oxyhydroxide battery, the method comprising:

combining a nickel hydroxide and a hydroxide salt in an inert atmosphere to form a dry mixture;

contacting the dry mixture with humidified ozone to form a nickel oxyhydroxide;

forming a cathode including the nickel oxyhydroxide; and

assembling the cathode, an anode, a separator, and an electrolyte to form the battery,

wherein the battery has a capacity loss after storage for 4 weeks at 60°C of less than 30 percent.

31. (Original) The method of claim 30, wherein the nickel hydroxide is cobalt hydroxide modified nickel hydroxide.

32. (Previously presented) The method of claim 29, wherein the inert atmosphere is substantially free of carbon dioxide.

33. (Previously presented) The method of claim 29, wherein the inert atmosphere is substantially free of water.

34. (Previously presented) The method of claim 29, wherein the inert atmosphere is substantially free of carbon dioxide and substantially free of water.

35. (Previously presented) The method of claim 29, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

36. (Previously presented) The method of claim 30, wherein the inert atmosphere is substantially free of carbon dioxide.

37. (Previously presented) The method of claim 30, wherein the inert atmosphere is substantially free of water.

38. (Previously presented) The method of claim 30, wherein the inert atmosphere is substantially free of carbon dioxide and substantially free of water.

39. (Previously presented) The method of claim 30, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

40. (Previously presented) The method of claim 1, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

41-65. (Cancelled)

66. (Previously presented) The method of claim 1, wherein the inert atmosphere is substantially free of air.

67. (Previously presented) The method of claim 29, wherein the inert atmosphere is substantially free of air.

68. (Previously presented) The method of claim 30, wherein the inert atmosphere is substantially free of air.

69. (Previously presented) The method of claim 29, wherein the battery is a primary battery.

70. (Previously presented) The method of claim 30, wherein the battery is a primary battery.

71. (Previously presented) The method of claim 1, further comprising heating the dry mixture while contacting the dry mixture with humidified ozone.

72. (Previously presented) The method of claim 1, wherein combining a nickel hydroxide and a hydroxide salt in an inert atmosphere comprises contacting the nickel hydroxide and the hydroxide salt with an inert gas.

73. (Previously presented) The method of claim 29, wherein combining a nickel hydroxide and a hydroxide salt in an inert atmosphere comprises contacting the nickel hydroxide and the hydroxide salt with an inert gas.

74. (Previously presented) The method of claim 30, wherein combining a nickel hydroxide and a hydroxide salt in an inert atmosphere comprises contacting the nickel hydroxide and the hydroxide salt with an inert gas.